

Emergency Online Pedagogy

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Colleagues:

The COVID19 pandemic is forcing many teachers unfamiliar with online teaching to abandon suddenly their traditional modes of instruction and to begin to interact with students through the Internet. Some find the prospect daunting. The aspiration of this document is to help such teachers make the transition from classroom to online teaching — and perhaps to see the shift, not merely as a way to slow the spread of infection, but as a source of educational opportunities.

Background: Each spring for the past eight years, I have taught [an online course on Copyright Law](#). More recently, [Prof. Ruth Okediji](#) and I have taught [an online course on Patent Law](#). Neither of these courses is a “MOOC” (Massive Open Online Course); in purpose and form, they more closely resemble traditional graduate and undergraduate courses. Most of the suggestions set forth below are derived from my experiences in those ventures. In addition, I have asked [the 18 teaching fellows](#) with whom I am currently working (each of whom is now teaching a “section” of 25 students online) to contribute their thoughts concerning techniques that have proven effective or ineffective. Their suggestions are interwoven with my own.

This document is short, but contains links to more detailed explorations of particular issues and to illustrative material. Some of the ancillary documents contain step-by-step instructions or video demonstrations showing how you might implement particular pedagogic strategies using [Zoom](#), the platform on which we will be most dependent in the coming weeks. But much more comprehensive information concerning the nuts and bolts of Zoom can be found on Harvard’s [“Teach Remotely” website](#).

If anything in the document is unclear (or strikes you as incomplete or wrongheaded), please submit a comment or question to the space at the bottom on the page. (Your submission will not appear immediately, but will be uploaded within a day.) I will do my best either to respond to submissions or to revise the document in light of them. I have placed the document online to maximize its availability and to facilitate revision. Feel free to share its web address with other teachers.

I. LECTURES

A. LIVE LECTURES

In my view, the least effective method of online teaching is live lecturing. Time pressure and limited technical support may tempt you to stand in front of your computer, log into Zoom at the time a class is scheduled to start, and deliver a

lecture in much the same way you might have done in a classroom – trusting your students to attend and take notes. This will probably not result in disaster; the quality of the material you present will be sufficient to sustain the venture. But all of the limitations of traditional lectures will be magnified in this new environment. If you are bent on lecturing, the following techniques will make the experience better for your students:

(1) The simplest is to turn on [the record function in Zoom](#). When you have finished lecturing, post the recording on your course website. Students can then watch the recording at their convenience, review it prior to the exam, speed it up (if you are a slow speaker), slow it down (if you are a fast speaker), rewind it to hear again your discussion of a complex issue, and so forth.

(2) If you are able and willing to upload the recording to Youtube, the [close captioning function of that platform](#) will make the lecture more accessible to students with hearing impairments. [Vimeo](#), the platform I happen to prefer, has [a similar capability](#).

(3) Instead of just talking to the screen, you might enrich your lecture with appropriate visual or audio-visual material. (Students consistently report that they find such material much more engaging than my face.). The simplest way to do this is to turn on the [“Share screen”](#) function in Zoom and then present Powerpoint or Keynote slides while you teach. The usual guidelines about Powerpoint apply: text (especially text that merely restates what you are saying) is boring; diagrams or illustrations are better. You can also use the Share Screen function to present short films — which will then be captured in the larger recording you make of the lecture as a whole. (There are some copyright hazards lurking here, but I’d be happy to defend you if push came to shove...). Here’s an [illustration](#) of a lecture leavened with graphics in this fashion.

(4) Encourage students to ask questions using the [“Chat” function in Zoom](#) — and then pause periodically to look at their submissions and decide which questions to address. This is one of the few respects in which the transition to online teaching makes life easier, rather than harder. When a student raises her hand in a classroom, you of course don’t know before deciding whether to call on her, what she wants to ask. The chat function gives you a preview of students’ concerns — and thus enables you to make more informed decisions regarding whether or when it makes sense to pause your presentation to address them. To optimize use of this technique, it’s best to announce at the outset of an online lecture your expectations concerning the Chat function. Issues to address include:

- Will you be looking at the chat channel?
- If so, how often?
- If one of the students in the class is in a position to answer a question posted to the chat by another student, should he or she do so?

If you don’t want your students to use the function to talk privately with one another, select the [“everyone publicly” setting](#).

B. PRE-RECORDED LECTURES

Instead of lecturing live through Zoom (and recording the lecture), consider creating a lecture offline and then posting it online. This approach does have one disadvantage: you will of course forfeit the benefit of student questions during the presentation, which can both enliven the presentation itself and allow you to adjust if the questions reveal misunderstanding. However, it has two major advantages.

First, the quality of a pre-recorded lecture is likely to be substantially higher than that of lecture delivered live. Pre-recorded lectures can be constructed in segments — which can then either be posted online separately (like [this](#)) or stitched together and posted online as a single unit. If you are not happy with one segment, you can discard and replace it. Equally important, it is much easier to integrate graphics and audiovisual material in a pre-recorded lecture. (Some techniques for doing this will be discussed shortly.) Last but not least, pre-recorded lectures can be edited.

Having used both formats, I am now strongly in favor of pre-recorded rather than live lectures. Feedback from my students over several years makes clear that they share this preference. My lectures are significantly tighter and clearer when I record them in advance. You may think that you can produce an elegant lecture in “one take,” and perhaps you are right — but I confess that I thought so as well until I watched a recording of one of my unedited presentations.

The second advantage of a pre-recorded lecture is that it is not vulnerable to a major technological threat posed by the sudden and massive shift to online education prompted by the pandemic. In my experience, Zoom is an excellent platform — much more convenient and flexible than the platforms I employed until recently. However, [it is not clear that Zoom's servers have sufficient capacity](#) to handle the extraordinary load that they will soon be asked to carry. Betting a class on the availability of Zoom at a particular time is thus risky. By contrast, a pre-recorded lecture can be uploaded to the Internet at any time. In addition, students need not “stream” it, but instead can download it to their computers and then watch it at their convenience. This delivery method is far less vulnerable to technological overload. In addition, the larger the number of teachers who rely on pre-recorded lectures, the smaller will be the aggregate burden imposed on Zoom and thus the greater the likelihood that it will be available when we need it.

The best way to create a prerecorded lecture is to work with professional filmmakers and editors — like [the folks at HarvardX](#). Unfortunately, it seems unlikely that those folks will be able to assist many faculty members during the frenzy of the next several weeks. Professional polish is not essential, however. Much more important than high production values is substantive quality. That you can generate reasonably easily with minimal equipment and technical skill. Here are some of the available methods:

- The simplest is to use the recording function in Powerpoint. This method enables you to overlay a narration on a sequence of slides. Detailed instructions concerning how to create a recorded lecture this way are available [here](#). There are obvious limits to this technique: your face never appears on the screen, and you are tied to slides. But it produces a perfectly acceptable recording.
- Apple's Keynote program has a similar, slightly more sophisticated function, instructions for which are available [here](#).

- Substantially more sophisticated and flexible is the [Screenflow program](#). Its advantages include the ability to combine video from the camera built into your computer with images drawn from several sources and audio captured either by your computer's microphone or by an external microphone. It also contains intuitive editing functions, which would enable you to refine your lectures. It does cost money (roughly \$130) and takes more time to learn than either Powerpoint or Keynote, but can do much more. Good instructions for using Screenflow to create lectures can be found [here](#) and [here](#).
- Harvard faculty also could use for this purpose the Panopto system, instructions for which can be found [here](#).
- Finally, if you have lots of time and a bit of money, you can create reasonably high-quality multi-media lectures using a combination of a DSLR camera mounted on a tripod, Powerpoint, and the Adobe Premiere Pro video-editing software. Online instruction in this approach can be found [here](#) and [here](#).

II. DISCUSSIONS

Even if you have created fabulous recorded or pre-recorded lectures, it is hazardous to rely exclusively upon them. Most teachers have found heavy use of lectures to be problematic when teaching offline; in my judgment, it's even more problematic when teaching online. Somewhat more specifically, I have found that no more than one third of the "classes" in an online course should consist of lectures. I have occasionally raised the proportion to one half — and the results have not been good. At best, excessive lecturing will cause student engagement to drop; at worst, students will come to experience the course as bad television.

This warning is especially applicable to instruction in law, humanities, and the social sciences — the only fields in which I have direct experience. The share of classes that may be devoted to lectures may be higher in a course on, say, chemistry or computer science. But even in such sharp-edged fields, I doubt that lecturing ought to be the sole mode of delivery.

So — if one has to do something other than lecture, what should it be? Ideally, one would devote considerable time to moderated discussions of case studies or problems. As you are undoubtedly aware, studies of the relative efficacy of various modes of classroom instruction consistently find that students are much more likely to master and retain information and ideas when they put them to use — solving problems, debating their merits and applications, and so forth — than when they merely watch or listen to presentations of them. That generalization remains true with respect to online teaching.

Set forth below are some suggestions concerning how online discussions of this sort can be conducted effectively. Some of these suggestions may be relevant only to teaching law, but most could be applied regardless of the subject matter.

A. NUMBERS

Even mid-level Zoom accounts are capable of handling up to 100 students simultaneously. But it would be foolish to try to run a discussion with a group that large. My own experience is that up to 25 students can easily be incorporated into an

online discussion — especially if the teacher employs some of the techniques described below. 50 is probably the maximum that can be included in a robust discussion. (By coincidence, that is also the number that Zoom is capable of displaying simultaneously on a single computer monitor.) A class larger in size should probably be divided into two or more groups, which could then be taught online at different times.

B. TEACHING FELLOWS

Awareness of the limited number of students that can engage in an online discussion simultaneously leads naturally to the question of teaching fellows. Among the many advantages of incorporating TFs in an online course is that they can each take responsibility for a modest number of students. So, if you already have a team of teaching fellows, I strongly suggest that you enlist them to teach online seminars. If you don't, you might consider asking recent graduates (or anyone else in whose expertise you have confidence) to take on this task. [My own experience with teaching fellows](#) has been extremely encouraging. Every year, students in my CopyrightX course have rated very highly the supervised online discussions that they have had in their “sections.”

C. CASE STUDIES

In online teaching, it is even more important than in classroom teaching to have a well developed case, case study, or problem prepared in advance, which can then provide the focus for discussion. I have found that a combination of two documents works best when setting up a conversation: a medium-length slide deck that can be shown to students at the outset of the online seminar (using the [Share Screen function](#) of Zoom) and a very short pdf document that can be emailed to students in advance of the seminar (to which they can refer during the discussion).

If the seminars are going to be run by teaching fellows, it helps to provide them a teaching manual. However, I would advise against tying teaching fellows to a tight lesson plan. Good TFs can handle a great deal of autonomy — and they will teach better if given it. Moreover, they are likely to be more adept in the online environment than you are and thus will recognize and exploit pedagogic opportunities that would not occur to you.

Here are examples of the three types of documents just mentioned — all of them related to a case study I often teach early in my Copyright class:

- [Ecce Homo Student Handout](#)
- [Ecce Homo Slides](#)
- [Ecce Homo Teaching Manual](#)

D. TOOLS

The Zoom platform (and most similar platforms) contains several tools that can be used to stimulate or organize seminar discussions. These are listed below.

- a variety of screen sharing options

- the chat function
- polls
- hand-raising
- [breakout rooms](#)

Jenn Esch (the Head Teaching fellow for this year), has prepared [a short document that provides detailed instructions](#) on how to use each of these tools when running a seminar. I strongly encourage you to practice using them before you are obliged to teach a real class. Once you get the hang of them, they are straightforward. But hunting for the right button while students are waiting can be nerve-racking and will waste everyone's time.

Several of these tools are helpful in mitigating one of the major hazards of online seminars: the reluctance of students to participate. But no tool can eliminate that hazard altogether. Many of my teaching fellows have noted the discomfort that comes from "speaking into the void." Particularly if you are using the Share Screen function (and do not have a second monitor) and thus cannot see students' faces, you may find it awkward to ask a question and be met with silence. As in a classroom, it's usually best just to wait; someone will eventually volunteer, and students will know that you will not bail them out by answering your own question.

E. PACE

Although, as suggested above, it is important to prepare in advance materials that will support a good discussion, be wary of overpacking an online seminar. Particularly in the early stages of an online course, technical glitches will force occasional pauses. And use of the tools just discussed takes time. Better to leave opportunities for questions provoked by one rich case study than to tee up two or three case studies and be forced to rush through them.

F. RECORDING

You can of course [record a discussion](#) conducted on Zoom, just as you can record a lecture presented on Zoom. Doing so is wise if, for example, you expect some of your students to be unable to participate in the original session. If you are curious to see what a recording of a Zoom discussion looks like, [here is one](#). (It's a conversation I had this morning with a group of teachers in other countries. There are a few glitches in the recording — but that's realistic.)

G. SETTINGS

When you first set up your Zoom account, you are given the opportunity to alter the account settings. (You can also change the settings at a later time, and the modifications will apply to all future classes.) I suggest the following:

- By default, student microphones should be *off*. Otherwise you will get a lot of background noise as they sign on. (You also have the capacity to turn their microphones off involuntarily — and teaching fellows report that this can be very useful.)

- By contrast, students' cameras should be *on* by default. This will enable you to see their faces — and typically makes them more attentive. If, however, you encounter bandwidth problems, you can and should switch off the cameras of everyone who is not currently speaking. This will reduce the load substantially and allow the class to proceed.
- If you wish to use the polling and breakout functions, you must make sure that the relevant settings are *on*.
- To avoid the risk that you will forget to turn on the Record function at the start of a class, you can choose to have all meetings automatically recorded — either to the “cloud” or to your own computer. You can also decide whether to permit students to record meetings.

A document showing all of the setting that I myself use (and the URL where those settings can be found) is available [here](#).

If students have [headsets](#) (combinations of headphones and microphones), encourage students to use them. This will eliminate the problem of feedback. You may want to use a headset yourself.

III. GUEST SPEAKERS

It is no secret that good guest speakers can enrich a course. If anything, it is easier to organize a guest appearance in an online course than it is in a classroom-based course. The speaker does not have to appear in person; he or she can simply log into the Zoom meeting for a class. And by recording such a class and then posting it online, you can enable all students to see the presentation, regardless of their health or the time zone in which they are located.

In the simplest version of this approach, the invited speaker just gives a free-standing guest lecture. Here are some examples:

- [Ruth Carter discussing costume design in “Black Panther”](#)
- [Bill Lee discussing Patent Litigation](#)

Alternatively, you can interview or debate the speaker. Example:

- [Eric Lander discussing Governmental Management of Innovation](#)

(All of these examples were filmed in classrooms and then posted online — but a presentation or debate conducted initially online, recorded, and then posted would be little different.) Careful editing is just as beneficial for recordings of such sessions as it is for recorded lectures.

IV. CODES OF CONDUCT

Discussions are most educational when students are respectful (as well as informed, concise, etc.). In a classroom, a teacher can usually (albeit not always) cultivate respect by example and by expressing disapproval of students who behave inappropriately. In online teaching, these traditional tools are less effective. In addition, disrespectful behavior by students can have more serious consequences.

For example, if X finds a comment by Y offensive and, after the seminar, posts on social media a denunciation of Y, Y is likely legitimately to feel seriously aggrieved, and the other students in the class may be loathe to make potentially controversial comments in the future.

To be sure, this hazard varies by subject matter. Online seminars on criminal law are more likely to explode than online seminars on genetics. But no class is free of this risk.

To reduce it, I recommend posting at the outset of the course a code of conduct. This may seem heavy-handed, but it helps foster a productive environment — and makes it easier to identify and check corrosive behavior by students. [Here's the code](#) that I use myself (originally developed in collaboration with the members of a class on Property law). Feel free to use this one if you find it helpful. But more important than the content of the code is that you have one — and make it explicit early.

That's all for now. I expect to revise this document periodically in the next few weeks. Please submit questions or suggestions in the space below.

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